NPIC/TSSG/RED-1872/69
5 November 1969

MEMORANDUM FOR THE RECORD

SUBJECT: Special Purpose Computers

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1. The Agency is currently under contract for the procurement of six [redacted] computers as integral components of four separate projects. Five of the computers are a result of NPIC contracts while the sixth computer is a part of the ORD image restoration equipment, which will be taken over by NPIC on delivery. The purpose of this memo is to outline, for planning purposes, the equipment to be delivered and the options available for each of the programs.

2. The four program areas utilizing the computers as an integral part of the project are: 1) High Precision Stereo Comparator; 2) Automatic Stereo Scanner; 3) Automatic Target Recognition; and 4) the ORD image restoration equipment. The specific computer and peripheral or interface equipment associated with each project is as follows:

a) High Precision Stereo Comparator

1. DDP-516-04 computer with 16K memory.

2. DDP-516-11 high speed arithmetic package.

3. DDP-516-50 & 52 high speed paper tape assembly (Teletype Corp. Punch Model BRPE-11 and Digitronics Reader, Model 2500).

4. ASR-35 Teletype (DDP-516-55).

b) ORD Image Restoration Equipment

1. DDP-416-01 computer with 4K memory.

2. DDP-416-4100 Magnetic Tape Control Unit.

3. DDP-416-20 Direct Multiplex Control Unit (DMC).

4. DDP-416-4106 Direct Multiplex Control Sub-Channel for 416-4100.

5. 3110 Model Series Kennedy Magnetic Tape Transport. (9 track 25 IPS 556/800 BPI).

6. ASR-33 Teletype.

c) Automatic Stereo Scanner

1. DDP-516-02 computer with 8K memory.
2. DDP-516-25 & 2 516-25-1 12 priority interrupt lines.
3. DDP-516-4100 Magnetic Tape Control Unit.
4. DDP-516-4130 Magnetic Tape Transport (36 IPS).
5. DDP-516-50 & 52 Paper Tape Unit (same as HPSC).
6. KSR-35 Teletype.
7. Special Interface
   a. 16 bit discrete input.
   b. 24 channel multiplexer with unipolar 10 bit A/D converter.
   c. 12 analog output channels.

      2 6-bit D/A converter
      10 4-bit D/A converters

      (converter output ±5 v at 1 ma)

   d. 12 lamp driver (relay driver) outputs each set to trigger on binary 0 to a D/A converter.
   e. 12 lamp driver (relay driver) outputs directly addressable.
   f. Automatic "start" hardware to sense "power on" from 110 v line, clear the computer and jump to a prepared "start" sub-routine.

d) Automatic Target Recognition

1. DDP-516-02 computer with 8K memory.
2. DDP-516-21 Direct Memory Access Control Unit (DMA).
3. DDP-516-21-1 3 additional DMA channels.
4. DDP-516-50 & 52 Paper Tape Assembly (same as HPSC).
5. ASR-35 Teletype (DDP-516-55).

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Note: A second DDP-516-01 with 4K memory with ASR-33 Teletype (DDP-516-53) and a DDP-24 are also part of the program. Both computers are being used as research tools and are not scheduled for delivery to the Center at this time.

3. The above-listed equipment represents only the self-contained data processing hardware aspects of each of the individual projects and does not represent the requirements for external computer support. Additionally, it is not intended to convey or represent the software or logic requirements of the programs.

4. A duplicate set of manuals has been obtained for the data processing equipment to be delivered with the stereo scanner. They are applicable to all three DDP-516's and, to some extent, the DDP-416, and are available on loan from [redacted] For a listing of the manuals available, see the attached list. 25X1

25X1 5. [redacted] normally includes two weeks of programmer training for two people and three weeks of maintenance training for three people for a total of 13 man weeks per machine in the purchase price of each DDP-416 and 516 computer. This training is available to Agency personnel if the program contractor elects not to utilize it in the performance of their contract. This represents an availability of 65 man weeks of paid up training, for which I understand arrangements can be made to trade between the software and maintenance training if additional hours of one type is desired at the expense of the other. For each of the five computers, the current situation is as follows:

a. The HPSC contractor has elected not to utilize any of the training available. IEG/PHD and PSG/AID have made arrangements to send one man each for two weeks of software training. No provisions have yet been made to utilize the maintenance training.

b. The ORD equipment contractor has utilized two man weeks of software training. The remaining training is available to Agency personnel, but no provisions have been made to utilize it.

c. The stereo scanner contractor has elected to utilize the software training themselves. The maintenance training may yet be available despite the considerable time since purchase of the hardware (early 1968).

d. The Automatic Target Recognition contractor has elected to use two man weeks of the available training and have no plans at this time to use the remainder.

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5. The HPSC and ORD equipment are both scheduled for delivery to the Center around April 1970. The Automatic Target Recognition equipment is scheduled for delivery about September 1970. The Automatic Stereo Scanner delivery is the least certain and it would be premature to predict a delivery date at this time.

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Attachment:
Publications List

COORDINATION (Project Monitor):

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NPIC/TSSG/RED-1872/69

DISTRIBUTION:
C/RED/TSSG/NPIC
C/ESD/TSSG/NPIC
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C/SRB/RED/TSSG/NPIC
C/ATB/RED/TSSG/NPIC
ATB/RED/TSSG (Attn: [redacted])
SRB/RED/TSSG (Attn: [redacted])
SRB/RED/TSSG (Attn: [redacted])

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Note: Since preparing this memo, I have received information that the maintenance training course has been extended from 3 to 5 weeks. At this time, I do not know what effect this change will have on the overall training situation.